3

Historical Perspective and Lessons Learned

When filtered and low-yield cigarettes were introduced into U.S. markets, they were heavily promoted and marketed with both explicit and implicit claims of reducing the risk of smoking. Even as data accumulated, albeit slowly, that these products did not result in much—if any—decrease in risk, consumers have continued to believe otherwise. The population continues to misunderstand the meaning of numbers that purport to describe yields of tar and nicotine. Consumer misunderstanding is explained in part by the ways in which these products are marketed and in part by general theories of risk perception. This chapter reviews some key evidence regarding tobacco marketing, risk perception, knowledge about toxicity, and reasons for using low-yield products in hopes of illuminating the possible effects, including the promise of benefit and the risk of increased harm, of potential reduced-exposure products (PREPs) on tobacco use and on the health of the public as harm reduction is pursued in the near future. This material provides some of the evidentiary base for several of the conclusions and recommendations found in Chapters 6 and 7 of this report.

TOBACCO MARKETING: EARLY HEALTH CLAIMS

Tobacco companies have promoted the manufactured cigarette for more than a century (Kluger, 1996). The history of cigarette marketing has been discussed in several sources (e.g., Altman et al., 1987; Cohen, 1996; Kluger, 1996; Kozlowski, 2000b; Pollay 1989, 2000; Pollay and Dewhirst, 2000; Ringold and Calfee, 1989; Swedrock et al., 1999; USDHHS, 1989, 1994, 1998; Warner et al., 1985). As shown in Table 3-1, the tobacco companies have appealed to health concerns of smokers at least since 1927. Claims about tar and nicotine levels appeared as early as 1942.

The federal government, primarily via the Federal Trade Commission (FTC), has been involved in regulating tobacco marketing. The FTC is empowered by Congress to "prevent persons, partnerships, or corporations . . . from using unfair or deceptive acts or practices in commerce" (McAuliffe, 1988; USDHHS, 1989; OSH, 2000). Using this authority, the FTC has undertaken several legal actions on health or medical claims made by tobacco companies. In 1942, for example, the FTC pressed Brown and Williamson Tobacco Corporation to stop making claims that Kool cigarettes, among other things, protected against colds and were soothing to the throat, and the company entered into a stipulation that it would refrain from doing so (FTC, 1942). As seen in Table 3-1, however, claims about Kools continued for several years after the 1942 stipulation.

The FTC also took legal action in the 1940s against claims that lower-tar cigarettes were beneficial (e.g., produced less throat irritation) (Cohen, 1996). These claims subsided. However, early in the 1950s, *Consumer Reports* published brand-specific tar and nicotine ratings. When claims increased, the FTC filed more suits against companies making claims about tar and nico-

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

tine levels. In September 1955, the FTC published "Cigarette Advertising Guides" that prohibited health claims (Cohen, 1996; Kozlowski, 2000b). Specifically, these guides prohibited claims about tar and nicotine that were not supported by "competent scientific proof" of a substantial (physiological) difference between brands (Cohen, 1996; McAuliffe, 1988).

The FTC explicitly stated that the guides would not prohibit statements about taste, flavor, aroma, or enjoyment (Kozlowski, 2000b). This led to the use of terms such as "mild," "light," and "smooth," which likely were better advertising techniques than direct health claims. The health-protecting messages brought to mind the fact that protection was needed, raising anxiety in the smoker. However, terms such as mild, light, and smooth only suggested the concept of safety and did not bring to mind the health-compromising properties of the product. The industry received counsel in the 1950s from motivational researchers who advised companies against using verbally explicit health appeals and suggested more visual images (Pollay, 1989). A comment by Martineau (1957), cited by Pollay (1989), is highly relevant. Martineau stated that direct claims "may offer some reassurance for the inveterate smokers, but they do utterly nothing to widen the market . . . to make smoking seem reasonable, justifiable, and highly desirable" (see Box 3-1).

Business Week publicly criticized the industry on the issue of direct health claims. McAuliffe (1988) cites the following quote from the December 5, 1953, issue: "Why has the industry persisted in this negative form of advertising even when, as tobacco growers and others complain, it hurts the trade by making people conscious that cigarettes can be harmful?" (Anonymous, 1953).

Advertisements using health claims in *Time* and *Life* magazines, which had increased substantially in 1952 and 1953 (after the first cancer scare), dropped to pre-1952 levels in 1954 (Swedrock et al., 1999). There has been a steady increase since the early 1960s in the percentage

BOX 3-1: 1977 British American Tobacco Company Document Describing Advertising and Communication Strategies to Reassure Consumers About Safety

> "All work in this area [communications] should be directed towards providing consumer reassurance about cigarettes and the smoking habit . . . by claimed low deliveries, by the perception of low deliveries and by the perception of "mildness." Furthermore, advertising for low delivery or traditional brands should be constructed in ways so as not to provoke anxiety about health, but to alleviate it, and to enable the smoker to feel assured about the habit and confident in maintaining it over time" [emphasis in original].

SOURCE: 030, Minnesota Litigation.

of magazine advertisements using visual images of bold and lively behaviors in pristine environments (Pollay, 1989; Pollay and Dewhirst, 2000; see Box 3-2).

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

BOX 3-2: Summary Analysis of Cigarette Industry Advertising

"The cigarette industry has not voluntarily employed its advertising to inform consumers in a consistent and meaningful way about any of the following: (1) the technologies employed in fabricating the products, (2) the constituents added in the manufacturing processes, (3) the residues and contaminants that may be present in the combustible column, (4) the constituents of smoke that may be hazardous, (5) the addictiveness of nicotine, or (6) the health risks to which its regular customers and their families are inevitably exposed. Their advertising for low-yield products, instead, has relied on pictures of health and images of intelligence, and has misled consumers into believing filtered products in general and low tar products in specific to be safe(r) than other forms without knowing exactly why."

SOURCE: Pollay and Dewhirst, 2000.

HEALTH IMPACT OF LOW-YIELD PRODUCTS

In a recent review of epidemiologic data on the disease risks associated with the changing cigarette, Samet (1996) concluded that low-tar and nicotine cigarettes, when compared with relatively higher-tar and nicotine cigarettes, were associated with modest decreases in lung cancer risk and similar cardiovascular risk. The data on chronic obstructive pulmonary disease (COPD) were inconclusive. For all diseases, smokers of lower-tar and nicotine cigarettes experienced substantially higher disease risks than persons who did not smoke. These findings were similar to those in a 1981 report of the U.S. Surgeon General (U.S.DHHS, 1981).

The nature of these relationships may be influenced by misclassification bias, in that smokers may not be able to accurately recall lifetime brand use patterns. In addition, selection bias may occur if symptoms or diseases cause smokers to switch to lower-yield brands and if persons who switch to lower-yield brands exhibit different life-style characteristics that may influence disease risk (Samet, 1996). For example, persons who switch to lower-tar products appear to be more likely to eat more fruits and vegetables (Haddock et al., 1999). Although the magnitude of such biases may eventually prove to be small, research to assess their potential impact is warranted.

In related analyses, Thun and colleagues (1997a) compared the relative risks of lung cancer and coronary heart disease in Cancer Prevention Study I (from 1959 to 1965) with those observed in Cancer Prevention Study II (from 1982 to 1988). The risks did not decrease across studies when the authors stratified for gender, duration of smoking, age, and number of cigarettes smoked daily, even though the average tar yield of cigarettes consumed decreased substantially during that time. The results of this analysis could be influenced at least in part by unmeasured differences in lifetime smoking patterns (e.g., number of cigarettes smoked daily during adolescence) and by life-style factors (e.g., fruit and vegetable consumption). The weight of the evidence indicates that lower-tar and nicotine yield cigarettes have not reduced the risk of disease proportional to their FTC yields, in part because smokers compensate to obtain more nicotine (Burns, 2000; Kozlowski and Pillitteri, 1996) and in part because the products themselves contain higher concentrations of selected carcinogens (Hoffman et al., 1996).

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

Increased prevalence of the use of lower-tar and nicotine cigarettes has been associated with an increase in the percentage of lung cancers that are adenocarcinomas and a decrease in squamous cell carcinomas (Levy et al., 1997; Thun et al., 1997b). This changing histological pattern may be influenced by increased levels, over time, of nitrosamines in cigarette smoke and by increased inhalation of lower-nicotine-yield cigarettes, as smokers attempt to compensate to reduced nicotine yields by inhaling more deeply (Hoffman et al., 1996; Kozlowski and Pillitteri, 1996).

RISK PERCEPTION

The Gallup Organization has polled Americans about their perceptions of cigarette smoking since 1949 (Moore, 1999). For example, in 1999, 95% of Americans considered smoking to be harmful, up from 60% in 1949. In 1999, 92% of Americans considered cigarette smoking to be one of the causes of lung cancer, compared to only about 40% in 1954. Additionally, about 80% of smokers considered smoking to be one of the causes of heart disease in 1999, compared to about 37% in 1957. For the purposes of this analysis, a focus on smokers' perceptions is crucial to understanding the possible ways in which various harm reduction approaches, including the marketing of PREPs, may be understood or interpreted and, as a result, may affect consumer behavior.

Perceptions by Smokers of the Risk of Cigarette Smoking

It is now well established that perceptions of the harmfulness of smoking affect behavior. Much might be learned about the possible consequences of introducing PREPs from analysis of studies of smokers' knowledge of the consequences of various types of tobacco products. Although Viscusi (1992, 1998) argues that smokers tend to overestimate their risks, the vast majority of research conducted to date supports the opposite conclusion. Weinstein (1999) has reviewed much of this research. In general, the work of Weinstein and others (Ayanian and Cleary, 1999; Cohn et al., 1995; Hahn et al., 1998; Slovic 1998, 2000) suggests the following:

- Although smokers acknowledge that smokers have higher risks for various health problems than persons who do not smoke, most smokers did not view themselves as having higher risks of heart disease or cancer compared to other adults their age.
- Smokers' estimates of the number of years of smoking that are needed to produce health consequences increase with the number of years they have been smoking.
- Many young smokers perceive themselves to be at minimal risk from each cigarette they smoke, because they intend to stop smoking before any damage to their health occurs.
- Adolescents and adults believe that they are less likely than their peers to become addicted to cigarettes.

These findings highlight the frequently observed phenomenon of "optimism bias" or "unrealistic optimism" (Weinstein 1999). For most hazards—and regardless of how they perceive the risks for people in general—individuals tend to perceive their own risks as less than those of other people (Weinstein, 1999; see Box 3-3).

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

BOX 3-3: Industry Document from 1974 Reporting on a Study of Young Smokers' Health Concerns

"Health concerns exist among younger smokers... One type of smoker rationalized smoking as a pleasure that outweighed the risks. Another felt that they didn't smoke enough to be dangerous. A third type rationalized his use of cigarettes by feeling he would quit before it was 'too late.' A final smoker group said that science would come to his rescue."

SOURCE: 018, K0028

Perceptions of the Risk from Low-Yield Cigarettes

In this report, cigarettes with tar yields on the FTC method of 15 mg or less are classified as low-yield cigarettes. In 1998, 81.9% of cigarettes consumed in the United States were low yield, up from 2.0% in 1967 (FTC 2000). Cigarette companies generally use "light" to refer to cigarettes with 6 through 15 mg tar and "ultralight" to refer to cigarettes with 1 to 5 mg of tar (Davis, 1987; Townsend, 1996). The terms are often used in surveys (e.g., Cohen, 1996), although the cut points used to classify brands may vary slightly.

The various studies described below have assessed perceptions of risks for smoking high and low-tar cigarettes. These assessments have been conducted for smokers overall and, at various times, by tar level of the smoker's usual brand and by whether the smoker has switched to a low-yield brand.

Data on perceptions of risks from types of cigarettes from the 1966 and 1975 Adult Use of Tobacco Surveys (AUTSs) are summarized in the 1981 Surgeon General's report (U.S. DHHS. 1981). The percentage of smokers who felt that "some cigarettes [are] more hazardous than others" increased from 29.9% in 1966 to 49.1% in 1975.

Perceptions Held by Smokers of Low-Yield Products Regarding Risk

Cohen (1992) reports on the results of a 1980 industry-sponsored Roper survey that he learned about during preparation for testimony in a court case. In 1980, more than one-third (36%) of smokers of low-yield cigarettes reported that smoking their brand of cigarette did not significantly increase a person's risk of disease over that of nonsmokers; another 32% stated that they weren't sure if this was the case.

More recently, data from the 1986 AUTS and the 1987 National Health Interview Survey (NHIS) were used to assess attitudes, knowledge, and beliefs about low-yield cigarettes among adults and adolescents (Giovino et al., 1996). Both low-tar smokers and persons who've ever switched to lower-tar brands were (compared, respectively, to persons who smoke higher-tar brands and those who've never switched) more likely to (1) acknowledge the dangers of smoking, (2) be concerned about the health effects of smoking, (3) say that their health has been affected by smoking, and (4) believe that their cigarettes are safer. In 1987, 44% of smokers reported that they had ever switched to a low-tar brand to reduce their health risks. Among persons 10–22-years-old in 1993 who smoked light or ultralight cigarettes, 33% said that they smoked

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

these brands because they taste better, 20% because they are less irritating, and 21% because they thought these cigarettes were healthier than other brands.

In another study, a 1995-1996 survey of individuals who enlisted in the Air Force, which was administered during the first week of basic military training (Haddock et al., 1999), 32% of current smokers reported that they had switched during the previous 12 months to a lower-tar and nicotine cigarette brand just to reduce their health risk.

Shiffman and colleagues (In Press) analyzed 1999 national survey data to assess health perceptions, tar and nicotine delivery characteristics, and smoking sensations among cigarette smokers. Most smokers, particularly smokers of light and ultralight (L/UL) cigarettes, believed L/UL cigarettes were less harsh and that they delivered less tar and nicotine than regular cigarettes. The beliefs that L/UL cigarettes delivered less tar and nicotine and that they were less harsh than regulars each independently contributed to predicting the belief that L/UL cigarettes were safer than regulars.

Knowledge and Perceptions About Yields and Yield "Terms"

A Gallup Organization poll conducted in 1993 asked respondents the following question: Besides selling the product, what message do you think cigarette advertising is trying to get across when it uses terms like low tar, low nicotine, or low yield? (Gallup Organization, 1993). Of the respondents, 56% of smokers and 60% of nonsmokers stated that the terms indicated a positive health benefit, with specific meanings that included being safer, less harmful, healthier, not as bad for you, or less cancerous.

Bolling and colleagues (2000) reported that English smokers did not find tar numbers (printed on cigarette packages) meaningful, claiming instead that the numbers were "scientific" and that they weren't sure if the numbers indicated yield per cigarette or per pack. Instead, smokers tended to rely on terms such as light, mild, and ultralight and on pack color to make assessments about various brands.

Based on results from a survey conducted in 1994, Cohen (1996) reported that 28% of smokers thought that switching from a 20-mg- tar cigarette to a 16-mg-tar cigarette would substantially reduce health risks. About one-quarter felt that a smoker could smoke 10 cigarettes yielding 1 mg of tar and take in the same amount of tar as smoking one cigarette yielding 10 mg of tar.

In Cohen's survey (1996), only 14% of smokers overall reported that they used the actual tar numbers to make judgments regarding the relative safety of different brands. However, 56% of smokers of cigarettes yielding 1 to 5 mg of tar reported that they used tar numbers when assessing health risks of various cigarettes. Tar numbers, which are printed on less than 10% of cigarette packages sold in the U.S., are more likely to be printed on the packages of the lowest-yielding cigarettes (FTC, 2000).

Kozlowski and colleagues conducted several informative surveys on the topic of light and ultralight cigarettes (Kozlowski et al., 1996, 1999; Kozlowski et al., 1998a; Kozlowski et al., 2000a; Kozlowski et al., 1998b; Kozlowski et al., 2000b). In one study, about two-thirds of smokers either reported not having seen or heard that there were "rings of small holes on the filters of some cigarettes" or did not know that blocking these holes would increase tar yields (Kozlowski et al., 1996). Less than 20% of smokers of ventilated brands knew that their cigarettes had filter vents (Kozlowski, et al., 1998b). These data show that although intense marketing by tobacco companies about low-yield products has influenced consumers' perception of product

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

safety, a lack of marketing or communication about ventilation holes has led to less informed consumers.

Another analysis indicated that the majority of smokers in a national sample responded either "don't know" or "two" in response to the question, How many LIGHT cigarettes would someone have to smoke to get the same amount of tar as from one REGULAR cigarette? (Kozlowski et al., 1998b). Less than 10% knew that one light cigarette could give the same amount of tar as one regular cigarette.

Reasons for Switching to Low-Yield Products

Smokers of light or ultralight cigarettes were asked if they smoked for each of the following reasons (presented in random order): "as a step toward quitting smoking completely," "to reduce the risks of smoking without having to give up smoking," "to reduce the tar you get from smoking," "to reduce the nicotine you get from smoking," and "because you prefer the taste compared to Regular cigarettes" (Kozlowski et al., 1998b). This study showed that 80% of smokers of light and 69% of ultralights preferred the taste of their brands; 50% of smokers of light and 72% of ultralight endorsed less nicotine as a reason; 57% of smokers of light and 73% of ultralights endorsed less tar; 39% of smokers of light and 58% of ultralights endorsed reducing risks without having to give up smoking; and 30% of lights and 49% of ultralights endorsed smoking their brand as a step toward quitting completely.

Knowledge Regarding Constituents, Additives, and Toxicity

Bolling and colleagues (2000) conducted a survey of 1,036 smokers in England in October 1998 to examine consumers' reactions to cigarette yield and product information. They also conducted focus groups and in-depth interviews in February 2000. While most smokers knew that tar (92%) and nicotine (98%) were present in tobacco smoke, fewer (29%) knew that carbon monoxide was present and almost none (≤5% for all chemicals) knew about the presence of toxic chemicals such as arsenic, lead, and cyanide. Bolling and colleagues also reported that smokers were shocked to learn about the presence of dangerous chemicals in their cigarettes, in part because such information undermined their beliefs that cigarettes were "natural" products.

In 1997, R.J. Reynolds Tobacco Company re-positioned the Winston brand with an advertising campaign claiming its product was made with "100% tobacco," containing "no additives" (see table 3-1, Arnett, 1999). In mall intercept interviews, 400 adolescents were surveyed about the Winston advertisements in Arizona and Washington, and 203 adults were surveyed in Washington. The two most common responses to the question, What do you think the Winston ads mean by saying that Winstons have "no additives"? were that Winston cigarettes contained only tobacco and that Winston cigarettes have no added chemicals. However, 36% of adolescents and 18% of adults also perceived them as meaning that Winston cigarettes were healthier than other cigarettes. Furthermore, 39% of adolescents and 20% of adults perceived the advertisements as claiming that Winstons were "less likely than other cigarettes to harm your health." Additionally, 42% of adolescents and 14% of adults stated that the advertisements meant that Winstons are "less likely than other cigarettes to be addictive." Overall, about two-thirds of adolescents and one-quarter of adults believed that the no additives claim meant at least one of the above implied health claims.

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

Evidence also suggests that consumers perceive menthol-containing cigarettes to be less harmful because they seem less harsh on the throat. Menthol cigarettes appear to be at least as dangerous as nonmenthol cigarettes (U.S.DHHS, 1998). About 26% of all cigarettes sold in the United States are mentholated (FTC, 2000). The vast majority of African-American smokers smoke menthol brands (U.S.DHHS, 1998). Epidemiological studies of mentholated cigarettes suggest that these products are at least as dangerous as nonmentholated cigarettes (Herbert and Kabat, 1989; Kabat and Herbert, 1991, 1994; Sidney et al., 1995). Additionally, the committee is aware of no evidence in support of the assertion that cigarettes without additives are less hazardous than those with additives.

Given the persistent health claims that were made about these products earlier in the century (Table 3-1), surprisingly little research has been conducted on people's perceptions of them. In a recent study, Hymowitz and colleagues (1995) questioned 213 adult smokers of menthol cigarettes who participated in a stop-smoking study. Among 174 African Americans, the main reasons for smoking menthols included the following: menthol cigarettes tasted better than nonmenthol cigarettes (83%); they had always smoked menthol cigarettes (63%); menthol cigarettes were less harsh on the throat than nonmenthol cigarettes (52%); inhalation was easier with menthol cigarettes (48%); and menthol cigarettes could be inhaled more deeply (33%). Among 39 white smokers of menthol cigarettes, reasons for their choice of menthols included menthol cigarettes tasted better than nonmenthol cigarettes (74%); menthol cigarettes were more soothing to the throat (51%); they had always smoked menthol cigarettes (39%); and inhalation was easier with menthol cigarettes (21%).

An industry document (Tibor Koeves Associates, 1968) reports the results of in-depth interviews (most likely conducted in 1968) of 10 African-American smokers of menthol cigarettes. The authors of the report concluded that two underlying factors "generated the great enthusiasm for menthol cigarettes" (p. 4). The preference for menthols seemed "based both on dynamic sensory and on psychological gratifications" (p. 4). The taste of menthol, which reminded many of candy, was a major attraction. The fact that the smoke wasn't hot or burning was also important. Psychologically, menthols were perceived to be modern and youthful. More relevant to this discussion, they were "considered as generally 'better for one's health'" (p. 7). Most respondents viewed menthols as "less strong" than regular cigarettes, with the understanding among interviewees that cigarettes that were less strong were less dangerous to one's health.

POTENTIAL INFLUENCE OF PREPS ON TOBACCO USE BEHAVIORS

The introduction of products to reduce harm in a population can result in both intended and unintended consequences. Both Pauly and colleagues (1995) and Hughes (1998) raise the possibility that the introduction of PREPs and their promotion as less harmful ways to smoke could lead to increased initiation. Behavioral adaptation can occur in ways that diminish the possible beneficial consequences of potentially harm-reducing products. In this section, consideration is given to studies relating to the possible influence of low-yield products on initiation and quitting.

Initiation

Arnett (1999) raised concerns that adolescents' beliefs about claims made in advertisements for the no-additive products described earlier could influence susceptible nonsmoking adolescents by inflating whatever optimism bias they already posses. Marketing strategies for the products could influence perceptions of product safety and the overall acceptability of smoking. In

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addition, such information might undermine the advice of parents, teachers, and health professionals. Unfortunately, there is little evidence one way or the other on whether the introduction of filters or light cigarettes has affected rates of initiation.

Silverstein and colleagues (1980) observed that smoking prevalence increased substantially for young girls in the 1970s. Their research had indicated that high school females experienced greater societal pressure to smoke (exhibited by a higher prevalence of trying smoking than for males) but a greater physiological pressure not to smoke (exhibited by a higher sensitivity to nicotine). However, the pressures to smoke may also have been due to marketing for women's brands, which increased markedly in the late 1960s and early 1970s (Pierce et al., 1994). Silverstein and colleagues (1980) concluded that females resolve the competing pressures by smoking fewer cigarettes per day and using low-yield cigarettes. The authors argued that if low-nicotine cigarettes were less available, many females would choose not to smoke rather than experiencing the unpleasant effects of nicotine reactions.

Quitting smoking

The introduction of PREPs into a population may increase, decrease, or have no effect on the rate of quitting smoking in that population. As with initiation, effects on quitting could be positive or negative. The direction and magnitude of these effects, if real, could influence the population impact of PREPs.

Effects on Motivation

PREPs may influence quitting by changing people's motivation to quit (Russell, 1978) in either direction. It is possible that switching to low-yield cigarettes has facilitated quitting by some people, because successful switching might increase smokers' confidence in their ability to control their smoking behavior and thereby encourage a future quit attempt (Hughes, 1995). However, switching to low-yield cigarettes could also reduce the motivation to quit. The 1980 finding that about 36% of smokers of light reported that smoking light did not increase risk compared to not smoking provides indirect evidence that they could have decreased motivation to quit (Cohen, 1992).

Users of low-yield cigarettes are generally more interested in quitting than those who smoke regular cigarettes (Giovino et al., 1996; Jarvis et al., 1989), although Shiffman and colleagues (In Press) found this to be true only for smokers of light (but not ultralight) cigarettes. They may also be more confident in their ability to quit (Haddock et al., 1999; Jarvis et al., 1989). In one recent national survey, 30% of light smokers and 49% of ultralight smokers reported that they used light cigarettes as a step toward quitting (Kozlowski et al., 1998a). In another study, 5.2% of persons who tried to quit during the previous 10 years but relapsed reported using low-tar and nicotine cigarettes as a quitting strategy during their most recent quit attempt (Fiore et al., 1990). However, a similar (4.6%) percentage of persons who tried to quit within the previous 10 years and were abstinent for at least 1 year at the time of being surveyed reported using low-tar and nicotine cigarettes as a quitting strategy during their most recent quit attempt. This finding suggests that even though many people use low-yield cigarettes as a quitting strategy, the efficacy of this strategy is doubtful.

In a recent national survey, 32% of smokers of lights and 26% of ultralights reported that they would be likely to quit smoking if they learned that one light or one ultralight cigarette could provide as much tar as one regular cigarette (Kozlowski et al., 1998a). Another study (Ko-

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

zlowski et al., 1999) used a simulated radio message to inform smokers that one light cigarette could provide as much tar as one regular cigarette. More than half (55%) stated that it made them think more about quitting, and nearly half (46%) said that the message increased the amount they wanted to quit. These data suggest that correcting misperceptions can motivate health-promoting intentions. Whether it can affect behavior remains unknown.

Effects on Quitting

Only a few large studies have assessed the association between tar levels or switching to lower-tar brands and actual quitting. In 1959, the American Cancer Society fielded the Cancer Prevention Study (CPS) I of approximately 1,078,000 adults. Hammond (1980) used the data to study quit rates as a function of tar levels. Persons who smoked cigarettes with ≤17.6 mg tar were classified as smoking low-tar cigarettes. Persons who smoked cigarettes with ≥25.8 mg tar were classified as smoking high-tar cigarettes. Those who smoked cigarettes with intermediate tar yields were classified as smoking medium-tar cigarettes.

Participants enrolled in 1959 were followed to 1965. Those who were still smoking in 1965 were followed until 1972. There was an inverse relationship between tar yield and the probability of quitting. Low-tar smokers at baseline and in 1965 were the most likely to be abstinent at each respective follow-up observation.

The 1986 AUTS was used to assess quitting among a nationally representative sample of persons who had ever smoked regularly (i.e., ≥100 lifetime cigarettes) (Giovino et al., 1996). Tar levels were ≤6 mg tar, 7–15 mg tar, and ≥16 mg tar. The prevalence of cessation was higher for persons who had ever switched brands to reduce their level of tar and nicotine. The relationship was observed overall and in the three age groups examined (17 through 34 years, 35 through 64 years, and ≥65 years). The prevalence of cessation was directly related to tar yield (of the current smoker's brand and the former smoker's last brand) overall and for persons age 35 through 64 and ≥65. More recent multivariate analysis of data for persons who had smoked within 15 years of the survey confirmed the direct relationship between tar level and abstinence (Giovino, 2000). Additionally, abstinence was more common among persons who had reported that they had never switched brands to reduce their tar levels.

The differences in the direction of the finding between the CPS and the 1986 AUTS data may be due simply to methodological differences between the studies. Additionally, one must consider that the overall tar level in 1959 was substantially higher than in 1986, making comparisons unrealistic. However, the differences may also represent a real phenomenon in which patterns of quitting changed over a period of nearly three decades. Low-tar smokers of 1959 may have been more motivated to quit than higher-tar smokers. In addition, some may have switched to lower-tar brands as a step to quitting. Around the mid-1970s, various advertising campaigns were run (see Table 3-1) introducing the notion that people could switch to lower-tar brands instead of quitting. It is possible that these advertisements decreased switchers' motivations to quit (see Box 3-4).

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

Box 3-4: British American Tobacco Memo Describing Use of Low-Yield Products by Smokers Trying to Quit

"Smokers needed light brands for tangible, practical, understandable reasons" [emphasis in original]. "It is useful to consider lights more as a third alternative to quitting and cutting down—a branded hybrid of smokers' unsuccessful attempts to modify their habit on their own."

SOURCE: 081, PSC 60

Most recently, Haddock and colleagues (1999) conducted a study of smokers who were forced to abstain during Air Force basic training. About 32% of smokers reported upon entering basic military training, that they had switched brands during the previous 12 months to reduce health risks. At 1 year follow-up, the percentage of switchers who reported being abstinent was slightly higher than nonswitchers (12.5% vs. 11.1%). However, this difference was not statistically significant in a multivariate analysis that controlled for demographic and smoking history variables. Further, the intervention represents involuntary deprivation and the sample is not generalizable to the U.S. population.

SUMMARY AND RELEVANCE TO PREPS

Studies on risk perception indicate that smokers tend to underestimate their overall risks from smoking. A large proportion of smokers considers smoking low-yield cigarettes to be safer than smoking regular cigarettes, even though evidence does not support such a conclusion. Menthol and additive-free cigarettes, which likely pose as much risk, respectively, as nonmenthol and additive-containing cigarettes, also seem to be perceived as somewhat safer. *The committee concludes that smokers could overestimate any potential benefits of PREPs*, although it is possible that the factors that influence perceptions of traditional tobacco products might not apply to radically different products such as PREPs. In addition, PREP users might be very different from the average smoker.

The committee recommends that smokers be informed at every opportunity that all tobacco products, including modified tobacco PREPs and cigarette-like PREPs, are toxic and poisonous. Health-related statements about PREPs should be accurate and made directly, unaccompanied by terms that imply safety in an oblique manner. It is likely that strategic use of visual images and textual themes of safety would promote harm reduction. Research should be conducted to explore the optimal mix of images and text in communications. In addition, research should be conducted to determine if varying the relative attractiveness of product packaging across product types (i.e., conventional tobacco products, tobacco-related PREPs, and pharmaceutical PREPs) will influence perceptions and behaviors in a health-promoting way.

Future research in this area should be conducted to assess factors that influence perceptions of risk in order to ensure that communications about PREPs—whether made by manufacturers or by health educators—take into account a PREP user's perceptions regarding the risks of conventional tobacco and the potential benefit of using PREPs. The magnitude of misleading optimism

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

bias for each PREP or type of PREP must be known to estimate the use of conventional tobacco and PREPs and, therefore, the possibilities for harm reduction.

The committee recommends strong and decisive efforts to monitor and correct misperceptions that consumers may develop regarding PREPs. These efforts are described in more detail in Chapters 6 and 7.

If PREPs are used by people who otherwise would have smoked conventional products, harm reduction could occur (assuming, of course, that a given PREP actually reduces risk). However, if many people who try these products otherwise would not have experimented with nicotine and then they continue to use a PREP or later switch to cigarettes or other tobacco products, then population harm could increase. Based on data from studies of low-yield conventional cigarettes, *the committee concludes that there is a risk of decreased quitting in current tobacco users if PREPs are available.* Data regarding initiation are less clear. Research is needed to better understand the ways in which various messages might influence children's and adolescents' perceptions and behaviors regarding PREPs and initiation of tobacco use with PREPs. Chapters 6 and 7 include recommendations for research and surveillance (for both public health and regulatory purposes) to better understand and prepare to respond to unintended consequences at the population level of PREP availability.

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

Table 3-1 Selected Advertising Text Messages for Cigarettes and PREPs—United States, 1927–2000

1927: "OLD GOLD cigarettes. Better . . . smoother . . . not a cough in a carload."

1928: "It's toasted." "No Throat Irritation—No cough." (Lucky Strike)

1929: "20,679 physicians have confirmed the fact that Lucky Strike is less irritating in the throat than other cigarettes."

"Many prominent athletes smoke Luckies all day long with no harmful effects to wind or physical condition." (Lucky Strike)

"MILD . . . and yet THEY SATISFY." (Chesterfield)

1930: "'It's toasted' *Your throat protection—against irritation—against cough.*" (Lucky Strike)

1932: "Do you inhale? What's there to be afraid of? Seven out of 10 inhale knowingly; the other 3 do so unknowingly. Do you inhale? Lucky Strike meets the vital issue fairly and squarely . . . for it has solved the vital problem. Its famous purifying process removes certain impurities that are concealed in even the choicest, mildest tobacco leaves. Lucky's created that process. Only Lucky's have it!" "IT'S TOASTED! Your protection against irritation, against cough."

1933: "Does winter make your head feel stuffy? Steam-heated rooms parch your throat? Heavy smoking 'brown' your taste? Then you've three extra reasons for changing to KOOLS. They're mildly mentholated. Light up and feel that instant refreshment. Smoke deep; the choice Turkish–Domestic tobacco flavor is all there. Smoke long; your throat and tongue stay cool and smooth, your mouth clean and fresh. Change to KOOLS. It's a change for the better."

"Give your throat a Kool vacation! Like a week by the sea, this mild menthol is a tonic to hot, tired throats."

1935: "They don't get your wind!" (Camel)

1936: "Ask your doctor about a light smoke." (Lucky Strike)

"The truth about irritation of the nose and throat due to smoking. Philip Morris & Company do not claim that Philip Morris cigarettes cure irritation. But they do say that an ingredient—a source of irritation in other cigarettes—is not used in the manufacture of Philip Morris . . . Their [group of doctors] tests proved conclusively that changing to Philip Morris, every case of irritation due to smoking cleared completely or definitely improved."

1937: "They're so mild and never make my throat harsh or rough." (Camel)

1938: ". . . so smooth and mellow you can smoke them in any number *without cigarette hangover.*" (Old Gold)

"Viceroy's filter neatly checks the throat-irritants in tobacco . . . Safer smoke for any throat. Inhale without discomfort."

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Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

1939: "Your throat will like the change. The mild menthol is definitely refreshing." (Kool)

1940's – 1950's: "Outstanding . . . and they are mild!" (Pall Mall)

"Pall Mall's greater length of fine tobaccos travels the smoke further on the way to your throat—filters the smoke and makes it mild."

1942: "*Reader's Digest* exposes cigarette claims . . . Impartial tests find Old Gold lowest in nicotine and throat-irritating tars . . .".

1943: ". . . filtering the flavor and aroma of the world's finest tobaccos into the smoothest of blends and checking OUT resins, tar, and throat irritants that can spoil the EVENNESS for smoking enjoyment!" (Viceroy)

1944: "Try Camels as your own T-Zone. T for taste. T for throat. The true proving ground for a cigarette."

1946: "More Doctors Smoke Camels Than Any Other Cigarette."

"Pasteurized for your protection." (Philip Morris)

"HEAD STOPPED UP? GOT THE SNEEZES? SWITCH TO KOOLS. . . THE FLAVOR PLEASES!"

1947: "When you have a cold and can't taste a thing, always smoke KOOLS to get back in the swing!"

1949: "Not one single case of throat irritation due to smoking Camels."

". . . Remember: Less irritation means more pleasure. And Philip Morris is the ONE cigarette proved less irritating—definitely milder than any other leading brand."

"Got a COLD? Smoke KOOLS as your steady smoke for that clean, KOOL taste!"

1951: "Notice that Philip Morris is definitely less irritating, definitely milder!"

"Filtered cigarette smoke is better for your health." (Viceroy)

1952: "No other cigarette approaches such a degree of health protection and taste satisfaction." (Kent)

"Because this filter is exclusive with KENT, it is possible to say that no other cigarette offers smokers such a degree of health protection and taste satisfaction."

". . . like millions today, you are turning to filter cigarettes for pleasure plus protection...it's important that you know the Parliament Story."

1953: "First cigarette ever to give you black and white proof of greatest health protection . . . with full smoking pleasure!" (Kent)

"The American Medical Association voluntarily conducted in their own laboratory a series of in-

Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

dependent tests of filters and filter cigarettes. As reported in the *Journal of the American Medical Association*, these tests proved that of all the filter cigarettes tested, one type was the **most effective** for removing tars and nicotine. This type **filter** is used by Kent . . . and only Kent!" "KENT. For the greatest protection of any filter cigarette with exclusive MICRONITE filter."

". . .Alpha Cellulose. Exclusive to L&M Filters, and entirely pure and harmless to health."

"Parliament filters 100% of the smoke—recessed filter keeps trapped tars and nicotine from touching lips or mouth!"

"New King-Size Viceroy gives Double-Barreled Health Protection . . . is safer for throat, safer for lungs than any other king-size cigarette."

"The nicotine and tars trapped by Viceroy's Double-Filtering action cannot reach your throat or lungs!"

"FILTERED CIGARETTE SMOKE IS BETTER FOR YOUR HEALTH. The nicotine and tars trapped by this Viceroy filter cannot reach your mouth, throat, or lungs!" *Reader's Digest*, January 1950.

1954: "L&M Filters are Just What the Doctor Ordered!"

"The cigarette that takes the **FEAR** out of smoking!" (Philip Morris)

1956: "Good news for ALL smokers . . . **Salem** filter cigarettes. THE FIRST TRULY NEW SMOKING ADVANCE IN OVER 40 YEARS! Menthol fresh. Most modern filter. Rich tobacco taste."

1958: "The first filter cigarette in the world that meets the standards of United States Testing Co. New Hi-Fi Filter Parliament." (note: the parenthetical phrase "high filtration" was printed, in small type, "Hi-Fi.")

1966: "The truth is out: The wire services recently released a new report that revealed that, new TRUE Filter Cigarettes delivered less tar and nicotine than other brands tested . . . It's TRUE . . . without our knowledge or permission, these tests were conducted and TRUE Filter Cigarettes were found to be 'most effective in removing tar and nicotine."

1971: "You don't cop out. We don't cop out. You demand good taste, But want low 'tar' and nicotine. Only Vantage gives you both."

1976: "Considering all I'd heard, I decided to either quit or smoke True. I smoke True."

"If you are a smoker: There are many reasons to smoke Now. If you are a smoker who has been thinking about 'tar' and nicotine, these are the reasons to smoke Now: Reason. Now has the lowest 'tar' and nicotine levels available to you in a cigarette, king-size or longer. 2 mg. 'tar,' 2 mg. nicotine."

1977: "Vantage is changing a lot of my feelings about smoking. I like to smoke, and what I like is a cigarette that is not limited on taste. But I am not living in an ivory tower. I hear the things being said about high tar smoking as much as the next guy. So, I started looking for a low tar smoke that had some honest-to-goodness taste."

Source: https://www.industrydocuments.ucsf.edu/docs/xylx0001

1978: "National Smoker Study: Merit Science Works! Low tar MERIT with 'Enriched Flavor' tobacco delivers taste equal to—or better than—leading high tar brands."

"I'm realistic. I only smoke Facts. We have smoke scrubbers in our filter."

1980s and 1990s: "Alive with pleasure." (Newport)

1981: "The pleasure is back. BARCLAY. 99% tar free."

1985: "Latest U.S. Gov't Laboratory test confirms, of all cigarettes: Carlton is lowest. Box King—lowest of all brands—less than 0.01 mg. tar, 0.002 mg. nic."

1987: "Ultra taste in ultra low tar. Test a pack today." (Vantage)

1997: "No Additives" (Winston)

1998: "New Marlboro ULTRA LIGHTS. Famous Marlboro flavor now in an ULTRA LIGHT."

1999: "1 mg. Isn't it time you started thinking about number one?" (Carlton)

"Discover the rewards of thinking light." (Merit Ultra Lights)

2000: "The best choice for smokers who are worried about their health is to quit. Here's the next best choice." (Eclipse™)

...a smooth satisfying tase with less smoke around you, virtually no lingering odor, and no ashes. (Accord)

SOURCES: Anonymous, 1946; Arnett, 1999; Caples, 1947; Chickenhead Productions, 2000; Glantz et al., 1996; Harris, 1978; Kluger, 1996; Kozlowski, 2000b; Lewine, 1970; Mullen, 1979; Pollay and Dewhirst, 2000; Richmond Times Dispatch, 2001; R.J. Reynolds Tobacco Company, 2000; Sobel, 1978; Swedrock et al., 1999.

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